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FREQUENCIES: for TARGETS

RANGE: 80 — .040" GLASS PLATE (35mm frame)

40X — 200L over 4 OBJECTIVES

20 — CAPS OVER OBJECTIVES?

10 — FREQUENCY RANGE ON

5 — INSTRUMENT YOU WANT TO TEST

| | 15l/m FIBER : 1200 | 600 | l/mm |
|---|---|---|---|
| 80 | 1200 | 600 | 80 |
| 40 | 600 | 300 | 40 |
| 20 | 300 | | 20 |
| 10 | 150 | 75 | 10 |
| 5 | 75 | | 5 (could be 2½) |

CHANGE TARGETS

PHASE SHIFT - basically no problem to get 5% accuracy

Before PACKING - Dr. Fourier on instruments

physical shape

source-target

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SINE WAVE
FILTERS ——— NEED 2 TARGETS : 15 Ø/mm

$T_{max}$ hopefully = 1

CONSTRAINT of $\gamma$ RECEIVED $\frac{T_{MAX} - T_{MIN}}{T_{MIN} + T_{MIN}} = 4\%$

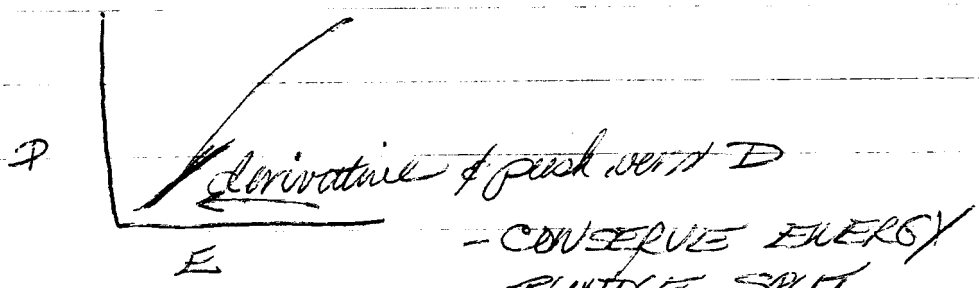
MAKE $I = T_{MAX}$

MODULATION of $\gamma$ WITH $T_{MAX}$ AS HIGH AS POSSIBLE ← STILL VISIBLE

SELF-NORMALIZING SYSTEM

TRADE-OFF CONTRE PRECISION & SEEING ABILITY

TOUT LE MONDE Q'UEST ~~EN~~ ASSEZ DE PETIT C'EST "LINEAR"




- CONSERVE ENERGY
- BUNDLE SPLIT

SELECTED FILTERS ASAP

DENSITY MATCH COARSE

IL N'EST PAS FAUX, MAIS TRY ONCE

DON'T CONFINE TO ONE MASK

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FILTERS:

1. .06 15 FINE
2. ON FILM preferably -- with a modulation in 3-4 different densities (for making final decision).
3. SIZE: NO MORE THAN 15 lines in eyepiece
   ∴ 1mm area for 1ℓ/mm
   1.5cm for 15ℓ/mm
4. BACKGROUND: CLEAN
5. TIME: 2 MONTHS, for won't need good ones until end of program.
6. FREQUENCIES: ACCURACY IS ARBITRARY - i.e., 1 & 15ℓ/mm can be nominal (BECAUSE THERE IS A CONTINUOUS-RANGE ZOOM for VISUAL MATCHING)
7. FURNISH SINE WAVES plus frequency, modulation, characteristic curve, etc...
8. AS A MINIMUM, 10 POINTS ARE NEEDED to PLOT FREQUENCY CURVES. (10 tgts within pattern)

TARGETS:

1. to BE ROTATABLE WITH CLICK STOPS EVERY 45°
2. EYE MOST SENSITIVE to SPLIT FIELD or D.C. (NON-SPLIT): D.L. LEANS TOWARD LATTER.
3. ONLY FIRST HARMONIC

RANGE of ACTUAL RESOLUTIONS (of EQUIPMENT) IN IMAGE PLANE will determine FILTER FREQUENCIES
∴ 5ℓ/mm (worst equipment) → 50ℓ/mm
affects size of package which goes into filter plane

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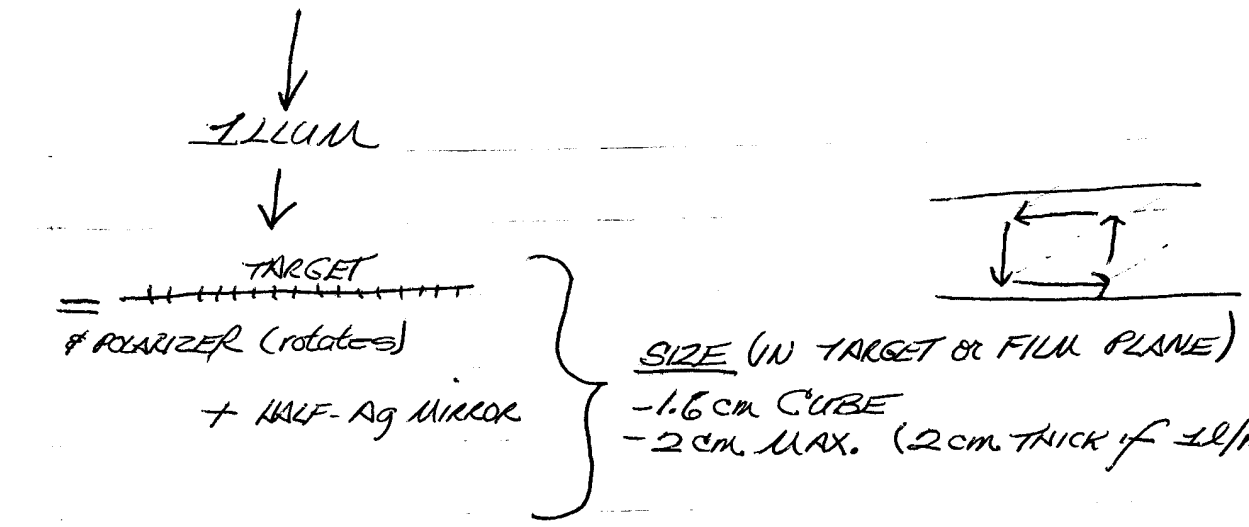


IF POSITIONED ANYWHERE ELSE, THERE WILL BE A BRIGHTNESS MATCHING PROBLEM -- WANT TO KEEP POLARIZER INSIDE.

RICHARDSON:
PERHAPS CAN RE-IMAGE WITH LENS INTO FILM PLANE
HOW MUCH SPACE ABOVE or BELOW?
WHAT ABOUT ILLUMINATION PROVIDED BY VIEWER?

SPECS. for SINE-WAVE TARGETS (1020 l/mm)

GENERATE PATTERNS of 13 LINE-PAIRS of WHICH ONLY THE FIRST HARMONIC WILL BE USED IN THE TESTS. THE FIRST TARGETS DO NOT HAVE SEVERE RESTRICTIONS ON SHAPE, BUT MUST BE PERIODIC and of KNOWN CONTRAST.

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# DIRECT VIEWERS

## I LIGHT TABLES:

1. EXISTING CONVENTIONAL TABLES
2. TWIN-LIGHT SOURCE TABLE (TWO SEPARATELY CONTROLLED VIEWING AREAS FOR INDIV. CHIPS)
3. ADVANCED TABLES and INTEGRAL, HIGH-INTENSITY TRACKING LIGHT SOURCE.
4. FLY-AWAY-KIT TABLE
5. SCANNING LASER/MODULATED LIGHT TABLE (LOGETRONICS DODGING PRINCIPLE)

## II TUBE MAGNIFIERS

## III BINOCULAR TUBE MAGNIFIER

## IV MICROSCOPES:

1. B&L STEREOMICROSCOPE (MODEL II) --
   - 3X-120X, ALSO USED AS ZOOM MICROSCOPE
   - DISENGAGED for INDIVIDUAL MAGNIFICATION CONTROL for PHOTOS of DIFF. SCALES (WITH RHOMBOIDS)

image at 8

2. ELGEET STEREOMICROSCOPE (NOT USED for STEREOPAIRS)
3. MACROSCOPES (20.5/41X) WITH MEASURING EYEPIECE

## V STEREOSCOPES:

1. THE WILD M-5 (EXPERIMENTAL LIGHT -- REFLECTED PROJECTION LIGHT WHOSE INTENSITY VARIED SEPARATELY WITH DENSITY FILTERS).

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## V. STEREOSCOPES (cont):

2. B&L DYNAZOOM MICROSTEREOSCOPE
   - NOT RESOLUTION LTD. (200X/1200 l/mm); IMAGE ROTATION 8X-
3. B&L INTERCHANGEABLE "VERSATILE" RHOMBOID STEREOSCOPE --
   - INDEPENDENT ZOOM & IMAGE ROTATION; LONG-ARMED RHOMBOIDS and ROLL-FILM STEREO-VIEWING.
4. DUAL-VIEWING MICROSTEREOSCOPE
   - NOT BE USED for STEREOPRS.
5. **ANAMORPHIC EYEPIECES** for VISUAL RECTIFICATION

## VI. VIRTUAL IMAGE VIEWER

## VII. FIBER OPTIC ROLL-FILM STEREOVIEWER #6.

## VIII. REAL-PROJECTION VIEWERS

1. RICHARDSON FILM VIEWERS
   - ON AXIS ILLUM. IS 200 ft-lamberts AT ALL MAGS. (5X-30X); GLASS PLATEN AUTOMATICALLY CLOSES -- WHEN FILM IS STATIONERY -- for OPTIMUM FOCUS; 500-WATT PROJECTION LAMP.
2. NRI FILM VIEWER
   - COMPARABLE to RICHARDSON; WIDE ANGLE PROJECTION LENS/INTERCHANGEABLE CONDENSER ELEMENT SYSTEM - 3X to 30X

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## VIII REAR-PROJECTION VIEWERS (CON 4):

3. SCANNED-LASER REAR-PROJECTION FILM VIEWER
   - 3-COLOR LASER ILLUM.; LIGHT MODULATION BY ELECTRO-
   - OPTICAL/SCANNING BY ROTATING MIRRORS.
4. MODULATED-LIGHT VIEWER
   - KINESCOPE LIGHT SOURCE
5. FILM READERS (COMP ON-LINE)
   - AT 4/8X, INTENSITIES EXCEEDING 300 foot-lamberts

DIRECT
6. VERSATILE, HIGH-PERFORMANCE FIBER OPTIC STEREOVIEWER
   - INDEPENDENT $\mu$X; 360° ROTATION; INDEPENDENT IMAGE ROTATION/REVERSION; CROSSOVER of STEREO CHANNELS; (BINOCULAR MONOSCOPIC VIEWING).
7. STEREO PROJECTION VIEWER
   - STEREOVIEWING POLARIZING TECHNIQUE; AIR BEARING GATE TO CLEAN & FOCUS FILM WHILE MOVING.

DIRECT VIEWER
8. PANORAMIC STEREOVIEWER (MANUAL CONTROLS)
   - ADJUSTMENTS for SCALE & DISTORTION; SCANNING

## IX PROJECTORS:

1. B&L TRI-SIMPLEX
2. VARIABLE-MAG. TRACING PROJECTOR (REAR-PROJ. IMAGE)

## X MEASURING TOOLS: COMPARATORS, MICROMETER, etc...

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## X TV-MONITOR VIEWERS

→ 1. CHANGE DIRECTOR (GOODYEAR) } ELECTRO-OPTICAL
2. BUDD IMAGE COMMUNICATION VIEWER }

## XI OTHERS

→ 1. DETAIL / COLOR CORRECTOR
2. P-E COHERENT LIGHT ENLARGER (.75X-60X); EK FLUID GATE
3. AUTOMATIC DODGING PRINTERS
4. RECTIFIERS (like EROS/ARIES)
5. COPY CAMERAS

## XII SCREENS

1. LIGHT AMPLIFYING SCREEN
2. PHOSPHOR/FLUORESCENT SCREEN

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